

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
TYLER DIVISION

ADAPTIX, Inc., Plaintiff, v. ALCATEL-LUCENT USA, INC., <i>et al.</i> , Defendants.	Case No. 6:12-cv-22
ADAPTIX, Inc., Plaintiff, v. ALCATEL-LUCENT USA, INC., <i>et al.</i> , Defendants.	Case No. 6:12-cv-122
ADAPTIX, Inc., Plaintiff, v. ALCATEL-LUCENT USA, INC., <i>et al.</i> , Defendants.	Case No. 6:12-cv-123
ADAPTIX, Inc., Plaintiff, v. ERICSSON, INC., <i>et al.</i> , Defendants.	Case No. 6:13-cv-49
ADAPTIX, Inc., Plaintiff, v. ERICSSON, INC., <i>et al.</i> , Defendants.	Case No. 6:13-cv-50
ADAPTIX, Inc., Plaintiff, v. T-MOBILE USA, INC., <i>et al.</i> , Defendants.	Case No. 6:12-cv-369

**PLAINTIFF'S MEMORANDUM OF POINTS AND AUTHORITIES IN OPPOSITION
TO DEFENDANTS' MOTION FOR SUMMARY JUDGMENT OF INDEFINITENESS**

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Defendants attack the construction this Court gave to “coherence cluster” and “diversity cluster” as rendering indefinite all claims of U.S. Patent Number 7,146,172 (“the ’172 patent”). ADAPTIX disagrees; although the Court did not adopt the construction that ADAPTIX, Inc. (“ADAPTIX”), had proposed, nevertheless, a person of skill in the art would have little difficulty classifying the clusters into those two categories, even as the Court defined them.

During the *Markman* process, Defendants did not argue that the claims could not be construed with reasonable certainty, nor does their motion appear to argue that now. Rather, their motion simply criticizes the construction the Court chose as having resulted in indefiniteness. ADAPTIX disagrees; but if the Court concludes that its construction has led to indefiniteness, the appropriate remedy is to revise the construction to eliminate the problem.

ADAPTIX, submits this memorandum of points and authorities in opposition to the motion of defendants, Alcatel-Lucent USA, Inc., AT&T Mobility LLC, Cellco Partnership d/b/a Verizon Wireless, Sprint Spectrum L.P., Ericsson, Inc., LM Ericsson Telefonaktiebolaget, T-Mobile USA, Inc., and MetroPCS Communications Inc. (together “Defendants”), for summary judgment of indefiniteness. For the reasons set forth below, the construction the Court gave to the claim terms “coherence cluster” and “diversity cluster” meets the “reasonable certainty” standard required under *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120 (2014). As a result, Defendants cannot demonstrate by clear and convincing evidence that the construction renders the challenged claims indefinite under 35 U.S.C. § 112(b). Therefore, the present motion should be denied.

I. INTRODUCTION

ADAPTIX alleges herein that certain LTE-related activity of Defendants infringes

(among others) the '172 patent. On February 26, 2014, Magistrate Judge Craven issued a Claim Construction Order construing the disputed claim terms identified by the parties. *See* Dkt. No. 141.¹ Among the terms construed were “coherence cluster” and “diversity cluster.” *Id.* at 9-18. Defendants filed objections to the Order. This Court overruled the objections, stating, *inter alia*, that “Claim 1 requires at least one diversity cluster and at least one coherence cluster.” Dkt. No. 170 at 4.

The asserted method claims involve a base station’s allocation to subscribers of two categories of clusters of OFDMA subcarriers; namely, in the form of diversity clusters and coherence clusters. *See* '172 patent at 17:7-15 (claim 1); *id.* at 14:26-32 (specification). The parties agree that the purpose of the invention is to put multiple subcarriers “right next to each other so that they would share ... the same channel characteristics [thereby forming coherence clusters] – or far apart from each other so that they would have different channel characteristics.” Ex. A [Markman Tr.] at 88:18-89:3.² The specification of the '172 patent explains how coherence cluster subcarriers are consecutive or close and, thus, likely within the coherence bandwidth of the channel fading. *See* '172 patent spec. at 15:3-8.³

The term “close” forms part of the Court’s claim construction for the claim term “coherence cluster.” *See* Dkt. No. 141 at 18 (“logical unit of multiple physical subcarriers that are relatively close together, as compared to the subcarriers of a diversity cluster”). “Diversity cluster” has, similarly and rationally, been construed in relation to the coherence cluster. *Id.*

¹ Unless otherwise indicated, cited docket numbers are in Civil Action No. 6:12-cv-0022.

² Unless otherwise noted, all referenced exhibits are submitted with the accompanying Declaration of Anthony L. Miele.

³ As Defendants note in their Statement of Undisputed Facts, this means that a coherence cluster’s “channel quality will be fairly uniform.” Def’s Br. at 2-3.

(“logical unit of multiple physical subcarriers that are relatively far apart, as compared to the subcarriers of a coherence cluster”).⁴ Moreover, and importantly, the term “close” in the context of coherence clusters has also been defined in the ’172 patent. *See* ’172 patent at 15:3-6 (“[s]ince the subcarriers in a coherence cluster are consecutive or close (e.g. within the coherent bandwidth) to each other, they are likely within the coherent bandwidth of the channel fading”). Accordingly, in light of this term which forms part of the Court’s construction,⁵ Defendants have failed to (and cannot) present evidence showing that the Court’s construction would cause one of ordinary skill in the art to have any difficulty in determining with reasonable certainty when: (1) subcarriers (for one logical unit of subcarriers not defined in hindsight) are sufficiently close as to form a coherence cluster, and/or (2) subcarriers (for another logical unit of subcarriers not defined in hindsight) are relatively far apart (and therefore span a larger frequency range⁶) as compared to the subcarriers of a coherence cluster. The construction of the terms “coherence cluster” and “diversity cluster,” therefore, do not render the claims indefinite to one of ordinary skill in the art, and the present motion should be denied.

II. ISSUE PRESENTED

Whether Defendants have proved, by clear and convincing evidence, that the Court’s construction has rendered the claims indefinite, when the specification of the ’172 patent

⁴ Both terms “coherence cluster” and “diversity cluster” have constructions concerning the spacing of subcarriers – coherence clusters having subcarriers that are relatively *close* and diversity clusters having subcarriers that are relatively *far*. As explained herein, these types of clusters are defined in the specification in terms of whether their subcarriers are within (or likely within) a coherence bandwidth. ’172 patent at 14:31-33, 37-37, 15:3-6. Therefore, the terms close and far, as used to construe the terms “coherence cluster” and “diversity cluster,” relate to how much the cluster spans the frequency domain, i.e., the distance (in frequency) between the first and last subcarriers of the cluster (the outermost subcarriers).

⁵ Defendants Motion is erroneously premised on the notion that the Court would construe a claim term using wording from the patent (i.e., the term “close”) without regard to how one of ordinary skilled in the art would interpret that term in view of the specification.

⁶ See footnote 4 *supra*.

supports a construction of “coherence cluster” and “diversity cluster” that provides reasonable certainty under *Nautilus*.

III. STATEMENT OF UNDISPUTED MATERIAL FACTS

In the claim construction briefing, the parties sought the following constructions of these terms (see, e.g., ADAPTIX’s Reply Brief Dkt 128 at 5):

ADAPTIX’s Proposed Construction	Defendants’ Proposed Construction
“diversity cluster”: logical unit of at least two disjoint, physical subcarriers spread over the spectrum to achieve frequency diversity	“diversity cluster”: defined logical unit of multiple physical subcarriers, where the physical subcarriers are mapped to the logical unit so that at least some of the subcarriers are non-consecutive with and spread far apart from all other subcarriers of the logical unit
“coherence cluster”: logical unit of multiple physical subcarriers that are close together such that their channel response is roughly the same	“coherence cluster”: defined logical unit of multiple physical subcarriers, where the physical subcarriers are mapped to the logical unit so that they are consecutive or close together

Defendants’ focus during the proceedings was to add extraneous limitations to the constructions for these terms. Their objectives were to limit each of these cluster categories: (1) to logical units that are “defined,” and (2) to have physical subcarriers mapped to the logical unit. *Id.* at 6. During the *Markman* hearing, Defendants argued that the doctrine of claim differentiation precludes the construction of “coherence cluster” proposed by ADAPTIX. Ex. A (*Markman* Tr.) at 90. Defendants argued that claim 7 already recites that the subcarriers of one coherence cluster are within the coherent bandwidth which is inherent in the limitation “such that their channel response is roughly the same” as proposed for the term in the independent claim. *Id.* and Dkt. No. 118 [Defendants’ Responsive Brief] at 9. In response, during the hearing, ADAPTIX suggested changing its proposed construction for “coherence cluster” by replacing “such that their channel response is roughly the same” with “such that the outer subcarriers are close to

each other”. Ex. A (Markman Tr.) at 101. ADAPTIX also suggested changing its proposed construction of “diversity cluster” by replacing “to achieve frequency diversity” with “to make probable that the outermost subcarriers of the cluster are outside of the coherence bandwidth”.

Id.

Defendants continued to argue against each of ADAPTIX’s proposed constructions, asserting that the coherence and diversity clusters “have to be different,” *id.* at 93, which seemed to raise an issue regarding whether the two types of clusters “overlap”. *Id.* at 101. Apparently addressing this issue, the Court’s technical advisor stated the following:

TECHNICAL ADVISOR: Just one main question. Have the parties considered whether “diversity cluster” and “coherence cluster” could be defined with respect to one another? Because each side has proposed something of a descriptive phrase like “far apart,” close together,” “roughly the same.” Have the parties considered something along the lines of “carriers in a coherence cluster being relatively close together as compared to those in a diversity cluster” or “relatively spread apart as compared to those in a coherence cluster” or anything along those lines? How would the parties react to something like that?

Id. at 104.

Neither party had any issue with this approach, except that the Defendants argued that the two types of clusters must be construed to be, not just “logical units,” but “**defined** logical units” and that the language in their proposed construction “so that” was important to keeping the purpose of each cluster type a requirement.⁷ *Id.* [Markman transcript] at 107. This was clarified to be based on a concern by Defendants that the clusters not be defined “retrospectively”. *Id.* at 107 (“TECHNICAL ADVISOR... You just don’t want it to happen retrospectively by looking at

⁷ In this regard, Defendants stated during the hearing that there is no dispute that the purpose of the coherence and diversity clusters is to put multiple subcarriers right next to each other so they would share channel characteristics or far apart so that they would have different channel characteristics. See note 4 *infra* regarding how close and far relate to the outermost subcarriers and not the spacing among the subcarriers within middle portion of the cluster.

some random collection of clusters; is that right? MR. SWEDLOW: Right.”). *Id.* at 107.⁸

At no point did Defendants raise a concern that it is unclear what “close” means in the context of coherence clusters in the ’172 patent. In contrast, in their present explanation of the purpose of grouping each type of cluster in their Statement of Undisputed Material Facts, Defendants rely upon a portion of the specification that states that “subcarriers in a coherence cluster are consecutive or close [and therefore] likely within the coherent bandwidth of the channel fading.” Defs’ Br. at 2-3 (citing ’172 patent at 15:3-6).

As stated above, the asserted method claims involve the allocation of two categories of clusters of OFDMA subcarriers to subscribers – namely in the form of diversity clusters and coherence clusters. ’172 patent at 7:7-15 (claim 1); *id.* at 14:26-32. The parties agreed that the purpose of the invention is to put multiple subcarriers “right next to each other so that they would share ... the same channel characteristics [thereby forming coherence clusters] – or far apart from each other so that they would have different channel characteristics.” Ex. A [Markman Tr.] at 88:18-89:3. The specification of the ’172 patent explains how coherence cluster subcarriers are consecutive or *close* and thus likely within the coherence bandwidth of the channel fading. ’172 patent spec. at 15:3-6.⁹

To summarize, the term “close” forms part of the Court’s claim construction for the claim term “coherence cluster,” and the term “diversity cluster” is defined in relation to the coherence cluster. Moreover, and importantly, the term “close” in the context of coherence clusters is a term defined in the specification of the ’172 patent as the spacing of subcarriers so that “they are likely within the coherent bandwidth of the channel fading.” *Id.* The Court’s construction,

⁸ This issue is resolved by the Court’s clarification in its Order. *See* Dkt. No. 170 at 4.

⁹ As Defendants note in their Statement of Undisputed Facts, this means that a coherence cluster’s “channel quality will be fairly uniform.” Defs’ Br. at 2-3.

therefore, is properly consistent with the specification. *See, e.g., Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996) (specification is usually “the single best guide to the meaning of a disputed term.”)

IV. LEGAL STANDARDS

Summary judgment is only appropriate if no genuine issues of material fact exist such that the moving party is entitled to judgment as a matter of law. Fed. R. Civ. P. 56 (c); *see also OSRAM Sylvania, Inc. v. Am. Induction Techs., Inc.*, 701 F.3d 698, 704 (Fed. Cir. 2012). The moving party bears the initial burden of establishing the absence of a genuine issue of material fact. *See Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986). The Federal Circuit applies the law of the regional circuit when reviewing a summary judgment. *See, e.g., Charles Mach. Works, Inc. v. Vermeer Mfg. Co.*, 723 F.3d 1376, 1378 (Fed. Cir. 2013). The nonmoving party’s burden may not be satisfied by argument, conclusory allegations, unsubstantiated assertions, metaphysical doubt as to the facts, or a mere scintilla of evidence. *Little v. Liquid Air Corp.*, 37 F.3d 1069, 1075 (5th Cir. 1994) (citations omitted). At the summary judgment stage, the court does not make credibility determinations or weigh conflicting evidence. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 252 (1986). Moreover, a court is required to draw all reasonable inferences in a light most favorable to the nonmoving party. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 586 (1986).

As patents are presumed to be valid, 35 U.S.C. § 282, Defendants have the burden of proving that the challenged claims are indefinite by clear and convincing evidence. *See, e.g., Young v. Lumenis, Inc.*, 492 F.3d 1336, 344 (Fed. Cir. 2007). Thus, Defendants have the burden on summary judgment of presenting undisputed clear and convincing evidence of indefiniteness.

Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 254 (1986) (“in ruling on a motion for summary judgment, the judge must view the evidence presented through the prism of the substantive evidentiary burden”); *see also Componex Corp. v. Elecs. for Imaging, Inc.*, No. 13-cv-384, 2014 WL 5361946, at *9 (W.D. Wis. Oct. 21, 2014).

Definiteness under 35 U.S.C. § 112, ¶ 2 “require[s] that a patent’s claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014). Under this standard, “the certainty which the law requires in patents is not greater than reasonable, having regard to the subject-matter.” *Id.* (quoting *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261, 270 (1916)).

“As the phrase itself suggests, reasonable certainty requires more than a guess, but less than absolute exactness or mathematical precision.” *Precision Pine & Timber, Inc. v. United States*, 596 F.3d 817, 833 (Fed. Cir. 2010). Thus, the definiteness requirement “mandates clarity, while recognizing that absolute precision is unattainable.” *Nautilus*, 134 S. Ct. at 2129. Even under the “reasonable certainty” standard, however, the construction of claims necessarily involves “[s]ome modicum of uncertainty” as the “price of ensuring the appropriate incentives for innovation.” *Nautilus*, 134 S. Ct. at 2128 (citation omitted).

V. ARGUMENT

Defendants argue that one of the inventors was unable to classify clusters with reasonable certainty. Defs’ Br. at 7. In support, Defendants cite to a small portion of inventor Dr. Hui Liu’s deposition for the notion that it is “necessary for [one] to know the coherent bandwidth to be able to determine whether the set of subcarriers in Row B is a coherence cluster”. *Id.* at 7 and *id.* Ex.

3 (Exhibit 67 to Liu Dep.).¹⁰ This argument assumes as a premise that the coherence cluster recited in claim 1 should be read in a vacuum with no consideration of the meaning of the term “close” in the Court’s construction. However, this is a faulty premise. “Close” forms part of the Court’s construction of the term “coherence cluster.” *See* Dkt. No. 141 at 18. In the context of claim 1 and coherence clusters, the specification teaches that “close” means “likely within the coherent bandwidth of the channel fading.” ’172 patent spec. at 15:3-6; *see also Vitronics v. Conceptronic*, 90 F.3d at 1583 (specification is usually “the single best guide to the meaning of a disputed term.”).¹¹ This is consistent with the type of guidepost Dr. Liu referred to in another part of his testimony for determining when a cluster is a coherence cluster. *See, e.g.,* Ex. B [Liu Dep.] at 630 (“The coherent cluster is a set of subcarriers which are bundled more close to each other, so they tend to experience the same fading or amplification.”).

As for the purported notion that Dr. Liu’s response indicates that he is unable to classify clusters with reasonable certainty into coherence and diversity clusters, Dr. Liu provides examples of how he would indeed be able to make such a classification. For example, Dr. Liu makes it clear that the coherent bandwidth can be used to aid in determining if a cluster is a coherence cluster or a diversity cluster. *Id.* at 631-632. Alternatively, as noted above and consistent with the meaning of “close” per the ’172 specification, the coherence cluster can be classified as having “a set of subcarriers which are bundled more close to each other, so they tend to experience the same fading or amplification.” *Id.* at 630. In any event, courts in patent cases, including the Federal Circuit, have found that inventor testimony regarding definiteness,

¹⁰ Notably, Dr. Liu was not asked about specific claim language or to provide answers based on the Court’s constructions. Rather, the questions about diversity and coherence clusters were asked generally.

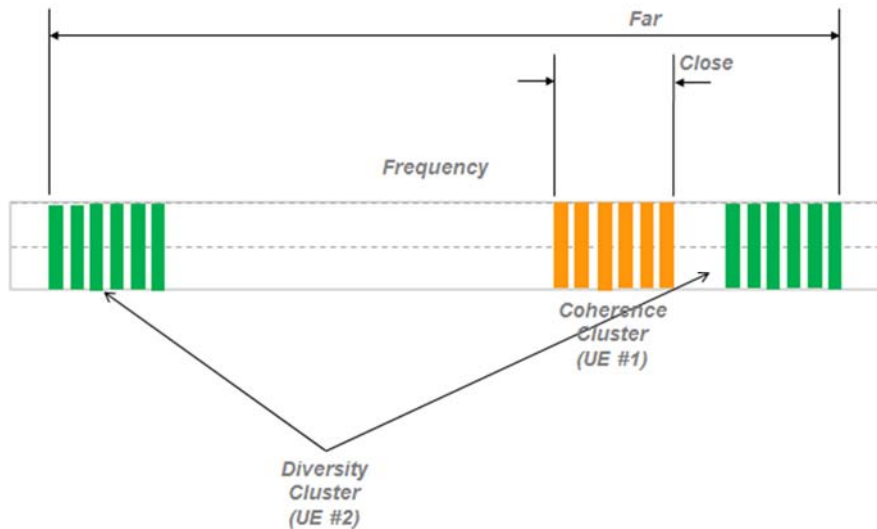
¹¹ This is not synonymous with claim 7 (reciting that the coherence cluster subcarriers ***are within*** (as opposed to ***likely within***) the coherent bandwidth). *See* ’172 patent at 18:1-3. Accordingly, there is no problem with claim differentiation vis-a-vis this limitation reflected in claim 1.

given years after the inventing activity took place (in this case, over twelve years later), is understandably often not as complete as such testimony would have been if given earlier. *See, e.g., Componex v. Elecs. for Imaging*, 2014 WL 5361946, at *10 (citing *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 985-86 (Fed. Cir. 1995) and *Solomon v. Kimberly-Clark Corp.*, 216 F.3d 1372, 1380 (Fed. Cir. 2000)). Thus, Defendants' complaints about Dr. Liu's testimony should be rejected.

The specification notes that when subcarriers are within the coherence bandwidth, the channel response remains roughly the same. '172 patent at 14:31-35. This can be determined, e.g., as disclosed in a treatise by Rappaport. Ex. C (T. S. Rappaport, *Wireless Communications: Principles and Practice* (1996)) at 163-164. *See Wells Dec.* ¶ 17. One may determine with reasonable certainty as required by *Nautilus* when subcarriers are likely within the coherence bandwidth, e.g., using the equation provided at column 16 of the '172 patent specification. '172 patent at 16:40; *Wells Dec.* ¶¶ 16-21. "Claim language employing terms of degree has long been found definite where it provided enough certainty to one of skill in the art when read in the context of the invention." *Interval Licensing LLC v. Aol, Inc.*, 766 F.3d 1364, 1370 (Fed. Cir. 2014), *citing Eibel Process Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45, 65-66 (1923); *Nautilus* 134 S. Ct. at 2129 ("absolute precision' in claim language is 'unattainable.'"); *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1335 (Fed. Cir. 2010).

Diversity clusters may then simply be classified with reasonable certainty, by noting that their physical subcarriers are relatively far apart (spanning a larger frequency range¹²), as compared to the subcarriers of a coherence cluster. *Wells Decl.* ¶ 24. This may be depicted as follows:

¹² See footnote 4 *supra*.



Importantly, consistent with the Court’s construction of these terms and the Court’s clarification regarding claim construction in its opinion dated May 1, 2014, Dkt. 170 at 4, each of these recited categories of clusters must also be logical units of subcarriers that exist at the time of allocation (i.e., they are not defined in hindsight). *Id.* These additional limitations address the concerns proffered by Defendants during the *Markman* hearing that the clusters should not be determined retrospectively by looking at some random collection of clusters. Ex. A (Markman Tr.) at 107.

Defendants also argue that their invalidity expert has demonstrated indefiniteness. Defs’ Br. at 8; Acampora Decl. ¶¶ 15-21. In view of the foregoing, considering that one of ordinary skill in the art would construe the term “close” in light of the specification, the three examples identified by Acampora fail to prove with clear convincing evidence that the claims are indefinite. Defendants state that the Court’s construction makes it impossible for one of ordinary skill in the art to determine whether Cluster 3 is a coherence cluster or whether Cluster 2 is a diversity cluster. These statements are misleading because they rely on the notion that the Court intended its claim constructions of the terms “coherence cluster” and “diversity cluster” to be

read in a vacuum without considering important information about how the allocated subcarriers as depicted, and without taking into account the meaning of the term “close” which forms part of those constructions. The statements provided in footnote 6 of Defendants’ brief are equally misleading for the same reasons.

As Dr. Liu points out in his deposition, one needs to know whether the colored pieces are OFDMA subcarriers (Ex. B at 669) and the spacing among those colored portions of frequency. *Id.* at 670).¹³ Accordingly, the examples provided by Acampora and referred to in Defendants’ brief lack context and, therefore, are not probative of how one of ordinary skill in the art would determine if the illustrated activity falls within or lies outside the boundary of the claim. In addition, one needs to consider whether the claimed coherence cluster is met, taking into account that the logical unit of subcarriers comprises subcarriers that are “close” (which term should be read in light of the definition provided in the specification).

Defendants fail to address the dependent claims or clarify whether they are taking the position that the Court’s construction renders the dependent claims indefinite as well. Clear Federal Circuit precedent holds that patent invalidity must be determined on a claim-by-claim basis. *See, e.g., Knoll Pharm. Co. v. Teva Pharms. USA, Inc.*, 367 F.3d 1381, 1384 (Fed. Cir. 2004); *National Steel Car, Ltd. v. Canadian Pacific Railway, Ltd.*, 357 F.3d 1319, 1334 (Fed. Cir. 2004). Accordingly, Defendants cannot demonstrate by clear and convincing evidence that the Court’s construction has rendered any of the dependent claims of the ’172 indefinite under 35 U.S.C. § 112(b). For example, claim 2 recites that the first subscriber comprises a mobile subscriber and the second subscriber comprises a fixed subscriber. These limitations provide

¹³ Additional contextual information that is missing from the Acampora examples, yet important for determining whether there are coherence or diversity clusters, includes how far apart the frequency segments are spaced and the size of the overall frequency band.

further guidance that allows one of ordinary skill in the art to determine with reasonable certainty whether different types of clusters in an accused system meet coherence cluster and diversity cluster limitations with the added limitations of claim 2. As another example, claim 7 recites that the subcarriers of one coherence cluster are within the coherent bandwidth of a channel. By specifying that the subcarriers of the coherence cluster are within the coherent bandwidth, the artisan is given a further aid to determine with reasonable certainty when a cluster is a coherence cluster and then to determine in comparison when a cluster is diversity cluster.

VI. CONCLUSION

For the reason set forth above, ADAPTIX requests that Defendants' motion be denied.

Dated: October 31, 2014

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing document was filed electronically in compliance with the Local Rule CV-5 on October 31, 2014. As of this date, all counsel of record have consented to electronic service and are being served with a copy of this document through the Court's CM/ECF system under Local Rule CV-5(a)(3)(A).

/s/ Paul J. Hayes